IN THE CLAIMS:

1. (Currently amended) A data collection apparatus, comprising:

a sensing unit for sensing a parameter comprising a sensor, a first data storage device, a first receiving device, and a first transmitting device, said first data storage device for storing data from said sensor, said first transmitting device for transmitting data derived from said sensor;

a control unit separable from said sensing unit, said control unit comprising a second receiving device, a second transmitting device, and a second data storage device different from said first data storage device, said second receiving device to receive data transmitted from said sensing unit, said second data storage device for storing said data received from said sensing unit wherein said sensing unit is configured so an unscheduled real time signal ~~from said control unit to said sensing unit~~ can trigger a change in at least one from the group consisting of: (a) sensor data handling, (b) sensor data collection, (c) sensor data storage in said sensing unit, and (d) sensor data transmission from said sensing unit.

2. (Currently amended) The apparatus as recited in claim 1, wherein said sensor comprises at least one from the group ~~including~~ consisting of an accelerometer, a displacement sensor, a strain gauge, a pressure gauge, a thermometer, a flow monitor, a heart monitor, an EKG, an EMG, an EEG, a blood monitor, a force gauge, a humidity monitor, a growth rate monitor, a ripeness monitor, a light intensity gauge, a radiation detector, a chemical detector, a corrosion detector, and a toxic monitor.

3. (previously presented) The apparatus as recited in claim 2, wherein said sensor comprises an array of said accelerometers.

4. (previously presented) The apparatus as recited in claim 2, wherein said sensor comprises a linear accelerometer.

5. (previously presented) The apparatus as recited in claim 2, wherein said sensor comprises a resistive accelerometer.

6. (Original) The apparatus as recited in claim 1, wherein said sensor is for detecting vibration.

7. (Currently amended) The apparatus as recited in claim 1, wherein said sensing unit is for attaching to at least one from the group ~~including~~ consisting of an architectural structure and a vehicle.

8. (previously presented) The apparatus as recited in claim 1, wherein said sensing unit is for wearing by a live subject.

9. (previously presented) The apparatus as recited in claim 1, wherein said sensing unit is for implanting in a live subject.

10. (previously presented) The apparatus as recited in claim 9, further comprising a hermetically sealed housing, wherein said sensing unit is located in said sealed housing.

11. (Currently amended) The apparatus as recited in claim 10 wherein said housing comprises at least one from the group ~~including~~ consisting of titanium and ceramic.

12. (previously presented) The apparatus as recited in claim 10, wherein said sensing unit further comprises an antenna, wherein said antenna extends outside said housing and is connected within said housing through a penetration in said housing.

13. (previously presented) The apparatus as recited in claim 1, wherein said sensing unit further comprises a microprocessor.

14. (previously presented) The apparatus as recited in claim 13, wherein said microprocessor is connected to said first storage device, said first transmitting device, and said first receiving device.

15. (previously presented) The apparatus as recited in claim 13, wherein said microprocessor comprises a triggering device for triggering said change.

16. (previously presented) The apparatus as recited in claim 1, wherein said sensing unit further comprises a power supply.

17. (Currently amended) The apparatus as recited in claim 16, wherein said power supply comprises at least one from the group ~~including~~ consisting of a rechargeable battery and a fuel cell.

18. (Original) The apparatus as recited in claim 17, further comprising a circuit for recharging said battery by inductive coupling.

19. (Original) The apparatus as recited in claim 18, further comprising a hermetically sealed housing, wherein said sensor and said circuit for recharging is in said housing and said coupling is through said housing.

20. (previously presented) The apparatus as recited in claim 18, wherein said circuit for recharging is in said housing and an antenna for said coupling is located outside said housing.

21. (previously presented) The apparatus as recited in claim 1, wherein said first receiving device comprises an RF receiver for receiving said real time signal.

22. (previously presented) The apparatus as recited in claim 1, wherein said first transmitting device includes an RF transmitter.

23. (previously presented) The apparatus as recited in claim 1, wherein said sensing unit includes a clock, wherein said control unit includes a time reference, and wherein said second transmitting device is capable of sending a timing signal to said sensor unit for synchronizing said clock to said time reference.

24. (previously presented) The apparatus as recited in claim 23, wherein a plurality of sensing units includes clocks, wherein said timing signal synchronizes said clocks on a plurality of said sensing units.

25. (Original) The apparatus as recited in claim 23, wherein said first storage device is connected to receive and record said timing signal.

26. (Original) The apparatus as recited in claim 1, wherein said first data storage device continually records.

27. Cancel

28. (previously presented) The apparatus as recited in claim 77, wherein when said data received by said sensor reaches a threshold, data in said first storage device is retained.

29. (Original) The apparatus as recited in claim 28, wherein said retained data includes data received after said sensor reaches said threshold.

30. (previously presented) The apparatus as recited in claim 1, wherein said sensing unit further includes a feedback device for adjusting said parameter based on said data.

31. (Cancel)

32. (previously presented) The apparatus as recited in claim 30, further comprising a sensor capable of detecting excessive vibration, wherein said feedback device is an active damping element to reduce vibration in response to excessive vibration.

33. (Cancel)

34. (Original) The apparatus as recited in claim 1, wherein said second data storage device comprises a computer.

35. (Original) The apparatus as recited in claim 1, wherein said control unit further comprises a device to signal a user that data exceeding a preset threshold has been reached.

36. (Cancel)

37. (Cancel)

38. (previously presented) The apparatus as recited in claim 1, further comprising a plurality of sensing units, wherein said second transmitting device is connected to transmit address information to said sensing units to activate all of said sensing units, to activate specific ones of said sensing units, or to communicate with an individual sensing unit of said plurality of sensing units.

39. (Currently amended) A method of collecting data, comprising ~~the steps of~~:

a) providing a sensing unit for sensing a parameter said sensing unit comprising a sensor, a first data storage device, a first receiving device, and a first transmitting device, said first data storage device for storing data from said sensor, said first transmitting device for transmitting data derived from said sensor;

b) providing a control unit separable from said sensing unit, said control unit comprising a second receiving device and a second data storage device different from said first storage device, said second receiving device for receiving data transmitted from said sensing unit, said second data storage device for storing said data received from said sensing unit;

c) transmitting an unscheduled real time signal from said control unit to said first receiving device to trigger a change in at least one from the group consisting of sensor data handling, sensor data collection, storage of sensor data in said first sensing unit, and transmission of data from said sensing unit;

d) triggering transmitting data from said first sensing unit to said second receiving device.

40. (Currently amended) A data collection apparatus, comprising a network of addressable sensing units and a control unit, wherein said sensing units are for sensing a parameter, wherein said sensing units each comprise a sensor, an addressable microprocessor, a first data storage device connected to said microprocessor, a first transmitting device and a first receiving device, wherein said sensing units are configured so a real time signal from said control unit to at least one said sensing unit can trigger a change in at least one from the group consisting of: (a) data handling, (b) data collection, and (c) data storage in said sensing unit, and (d) sensor data transmission from said sensing unit to said control unit, wherein said network of addressable sensing units and said control unit are arranged in a hierarchical architecture wherein control of said network is provided by said control unit.

41. (previously presented) The apparatus as recited in claim 40, wherein said control unit is separable from said sensing units, further wherein said control unit comprises a second transmitter, a second receiver, and a second data storage device for storing data received from said sensing units.

42. (previously presented) The apparatus as recited in claim 41, wherein second transmitter is connected to transmit address information to activate all of said sensing units, to activate specific ones of said sensing units, or to activate one of said sensing units.

43. (previously presented) The apparatus as recited in claim 41, wherein said control unit can provide an address to query each sensing unit individually.

44. (Previously presented) The apparatus as recited in claim 41, wherein said second transmitting device is for transmitting a timing signal for synchronizing said plurality of sensing units.

45. (Currently amended) The apparatus as recited in claim 40, wherein said microprocessor can do at least one from the group consisting of: (a) query, (b) activate, and (c) send timing information to each sensor of said sensing unit individually, and (d) activate all sensors at once.

46. (previously presented) The apparatus as recited in claim 40, wherein said sensing units further comprise a signal conditioner, an A/D converter, and a clock for microprocessor functions and to track time.

47. (previously presented) The apparatus as recited in claim 40, wherein said first data storage device is connected to said first transmitting device for transmitting data to said control unit when a real time signal triggering transmission is received.

48. (Previously presented) The apparatus as recited in claim 40, wherein said first transmitter and said second transmitter are wireless transmitters.

49. (previously presented) The apparatus as recited in claim 40, wherein each said sensing unit further comprises a triggering device for providing said triggering.

50. (previously presented) A data collection apparatus, comprising:

a plurality of sensing units for sensing a parameter, said sensing units each comprising a sensor, a first data storage device, a first transmitting device and a first receiving device; and

a control unit separable from said sensing units, said control unit comprising a second transmitting device, a second receiving device, and a second data storage device, said second data storage device for storing data received from said sensing units, wherein each of said sensing units is configured so a real time signal from said control unit to said sensing unit can trigger transmitting data derived from said sensor by said first transmitting device to said second receiving device, wherein said plurality of sensing units and said control unit are arranged in a hierarchical architecture wherein control of said network is provided by said control unit.

51. (previously presented) The apparatus as recited in claim 50, wherein said sensor units each further comprise an addressable microprocessor, and wherein said second transmitting device is further for transmitting timing and address information to said sensor units.

52. (previously presented) The apparatus as recited in claim 51, wherein said address information is to activate all sensor units, to activate specific ones of said sensor units, or to activate one of said sensor units.

53. (previously presented) The apparatus as recited in claim 51, wherein said control unit can provide an address to query each sensor unit individually.

54. (Currently amended) The apparatus as recited in claim 51, wherein said sensor units each further comprise a plurality of sensors wherein said microprocessor can do at least one from the group consisting of (a) query each of said sensors individually (b) activate each of said sensors individually (c) query all said sensors at once and (d) activate all said sensors at once.

55. (Cancel)

56. (previously presented) The apparatus as recited in claim 51, wherein said sensor units each further comprise a signal conditioner and an A/D converter.

57. (previously presented) The apparatus as recited in claim 51, wherein said microprocessor controls storage to said first data storage device.

58. (previously presented) The apparatus as recited in claim 50, wherein said first transmitting device can transmit data from said first storage device to said control unit.

59. (previously presented) The apparatus as recited in claim 50, wherein said second receiving device and second data storage device are for receiving and storing said data transmitted to said control unit.

60. (previously presented) The apparatus as recited in claim 50, wherein said first transmitting device and said second transmitting device are wireless transmitters.

61. (previously presented) The apparatus as recited in claim 50, further comprising a triggering device for providing said triggering.

62. (Previously presented) The apparatus as recited in claim 50, wherein each said sensing unit is configured so data from said sensor can trigger transmission from said sensing unit to said control unit.

63. (Previously presented) The apparatus as recited in claim 62, wherein said each said sensing unit is configured to trigger transmission from said sensing unit to said control unit once sensor data exceeds a threshold value.

64. (Previously presented) The apparatus as recited in claim 1, further comprising a host computer, wherein said control unit is connected to said host computer.

65. (previously presented) The apparatus as recited in claim 64, wherein said host computer is configured to accept user input, wherein a user operating on said host computer can send a signal for triggering data collection.

66. (previously presented) The apparatus as recited in claim 65, further comprising a triggering device for providing said triggering.

67. (Previously presented) The apparatus as recited in claim 1, wherein said sensing unit is configured so data from said sensor can trigger transmission from said sensing unit to said control unit.

68. (Previously presented) The apparatus as recited in claim 67, wherein said sensing unit is configured to trigger transmission from said sensing unit to said control unit once sensor data exceeds a threshold value.

69. (Previously presented) The apparatus as recited in claim 2, wherein said sensor comprises an angular accelerometer.

70. (Previously presented) The apparatus as recited in claim 2, wherein said sensor comprises a piezoelectric accelerometer.

71. (Previously presented) The apparatus as recited in claim 13, wherein said microprocessor comprises a triggering device for initiating transmission of data from said sensing unit to said control unit, wherein said triggering device is controlled by a real time change in said data.

72. (Previously presented) The apparatus as recited in claim 23, wherein said timing signal synchronizes clocks on said sensing unit and on another apparatus.

73. (Previously presented) The method as recited in claim 39, wherein in said triggering step (d) said triggering transmitting data step is provided by a trigger signal generated within said sensing unit.

74. (Previously presented) The method as recited in claim 39, wherein in said triggering step (d) said triggering transmitting data step is provided by a trigger signal received from said control unit.

75. (Previously presented) The apparatus as recited in claim 40, wherein each said sensing unit is configured so data from said sensor can trigger transmission from said sensing unit to said control unit.

76. (Previously presented) The apparatus as recited in claim 75, wherein said each said sensing unit is configured to trigger transmission from said sensing unit to said control unit once sensor data exceeds a threshold value.

77. (Previously presented) The apparatus as recited in claim 1, wherein said first data storage device is controlled by data received by said sensor.

78. (New) The apparatus as recited in claim 1, wherein said unscheduled real time signal includes at least one from the group consisting of a real time change in information that exceeds a predetermined threshold, a change in information about a structure or subject being monitored, detection of inactivity for a period of time exceeding a predetermined time, a signal from an analyst, an event sensed by said sensor, and a real time signal from said control unit to said sensing unit.